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(71) Applicant (for all designated States except US): **MIDWEST RESEARCH INSTITUTE [US/US]**; 425 Volker Boulevard, Kansas City, CO 64110 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WANLASS, Mark, W.** [US/US]; 2104 Douglas Mountain Road, Golden, CO 80403 (US). **MASCARENHAS, Angelo** [US/US]; 2285 South Holman Circle, Lakewood, CO 80228 (US).

(74) Agents: **WHITE, Paul, J.** et al.; National Renewable Energy Laboratory, 1617 Cole Boulevard, Golden, CO 80401 (US).

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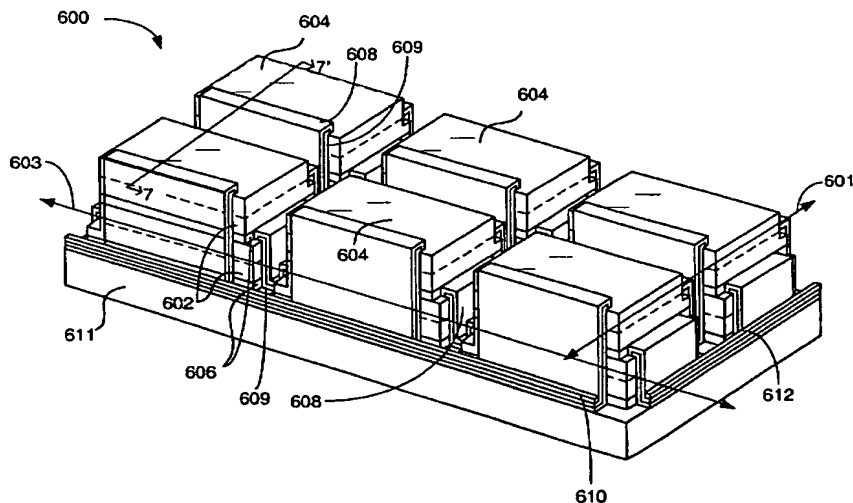
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(54) Title: MONOLITHIC PHOTOVOLTAIC ENERGY CONVERSION DEVICE



(57) Abstract: A multi-junction, monolithic, photovoltaic (PV) cell and device (600) is provided for converting radiant energy to photocurrent and photovoltage with improved efficiency. The PV cell includes an array of subcells (602), i.e., active p/n junctions, grown on a compliant substrate, where the compliant substrate accommodates greater flexibility in matching lattice constants to adjacent semiconductor material. The lattice matched semiconductor materials are selected with appropriate band-gaps to efficiently create photovoltage from a larger portion of the solar spectrum. Subcell strings (601, 603) from multiple PV cells are voltage matched to provide high output PV devices. A light emitting cell and device is also provided having monolithically grown red-yellow and green emission subcells and a mechanically stacked blue emission subcell.



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